APPENDIX 15: Te Kowhai Runway Future Proofing Study (Adapt Studio)

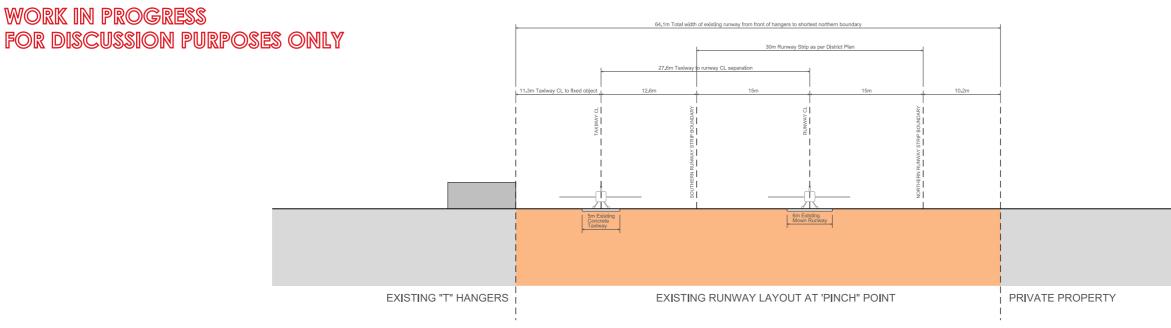
WORK IN PROGRESS FOR DISCUSSION PURPOSES ONLY

RUNWAY AND OLS FUTURE PROOFING STUDY

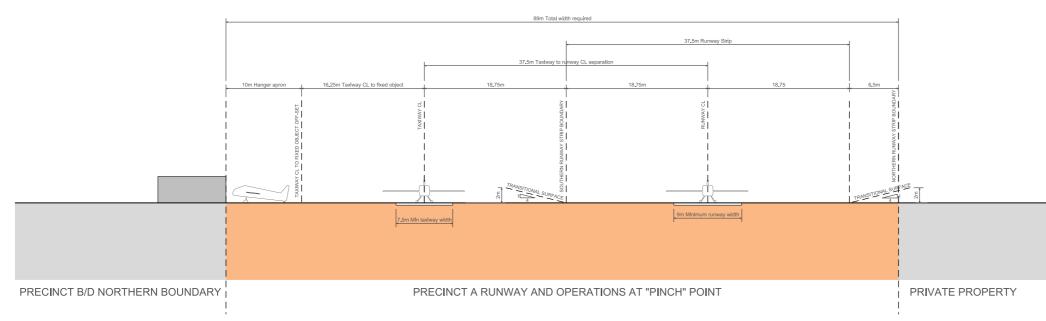
16 December 2017 Prepared for Te Kowhai Airfield Ltd by Adapt Studio Ltd Rev B

TE KOWHAI AIRPARK





Option A - Existing Runway Cross Section At Narrowest Western "Pinch" Point



Option B - Typical Runway Cross Section Day VFR (Existing Alignment)

Day VFR Only, Non-ATO, Code 1A (14.99m Max Wing Span)



1:500 @ A3

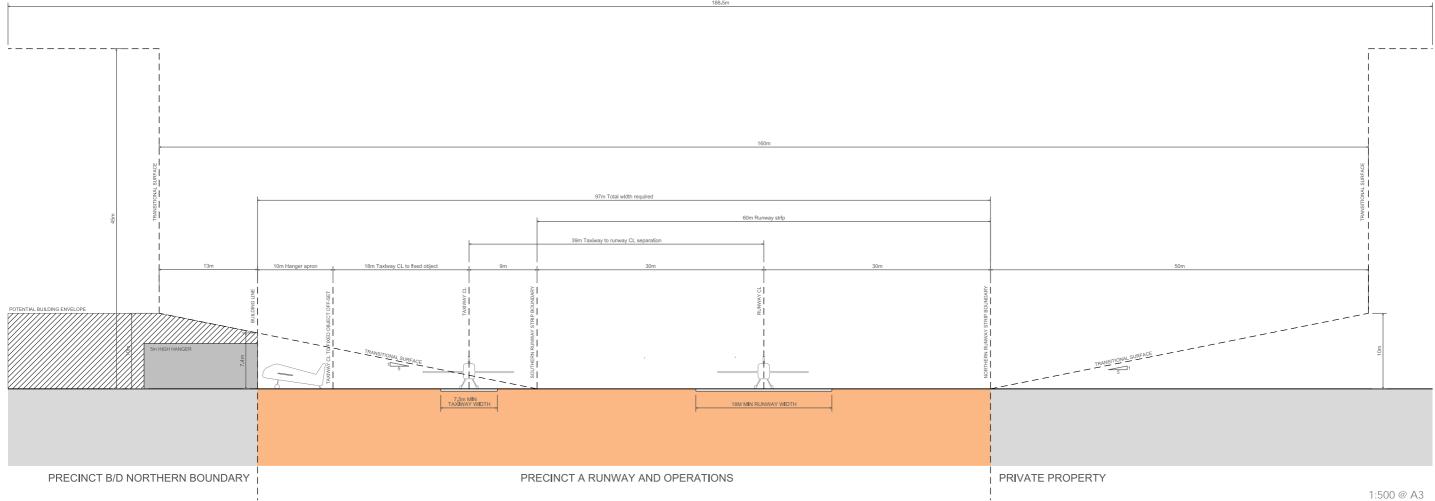
Day VFR Only - "Microlight Strip"

1:500 @ A3

TE KOWHAI AIRPARK **Option A and B Typical Cross Sections**

Date: 16 December 2017 | Revision B Drawing Number: 1702_009a Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd

WORK IN PROGRESS FOR DISCUSSION PURPOSES ONLY



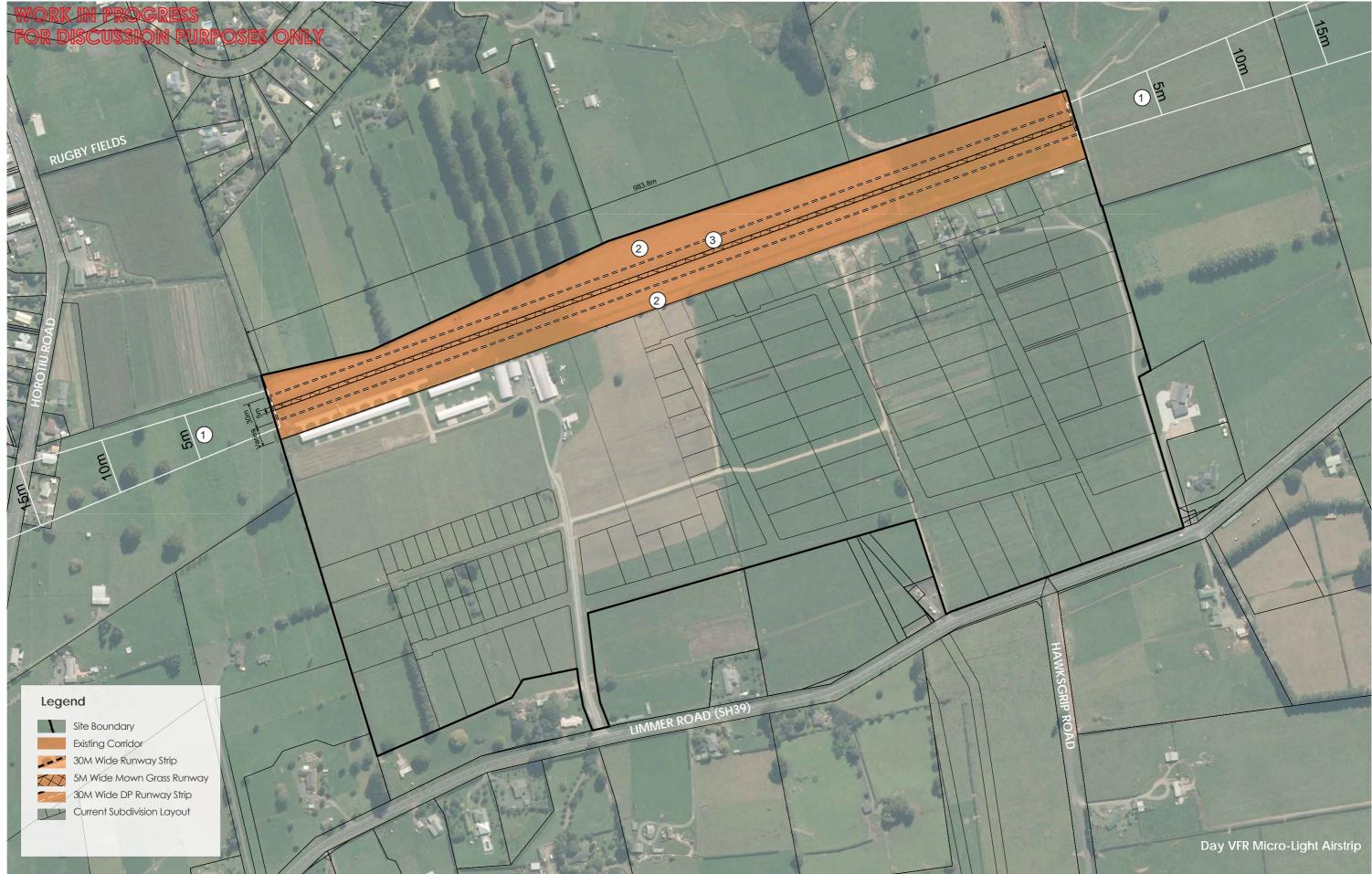
Day/Night/IFR, Non-ATO, Code 1A+ (18M Max Wing Span) And ATO Day VFR Only Code 1A+ (18M Max Wing Span)



Option C - Typical Runway Cross Section

TE KOWHAI AIRPARK **Option C Typical Cross Sections** Date: 16 December 2017 | Revision B

Drawing Number: 1702_009b Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd



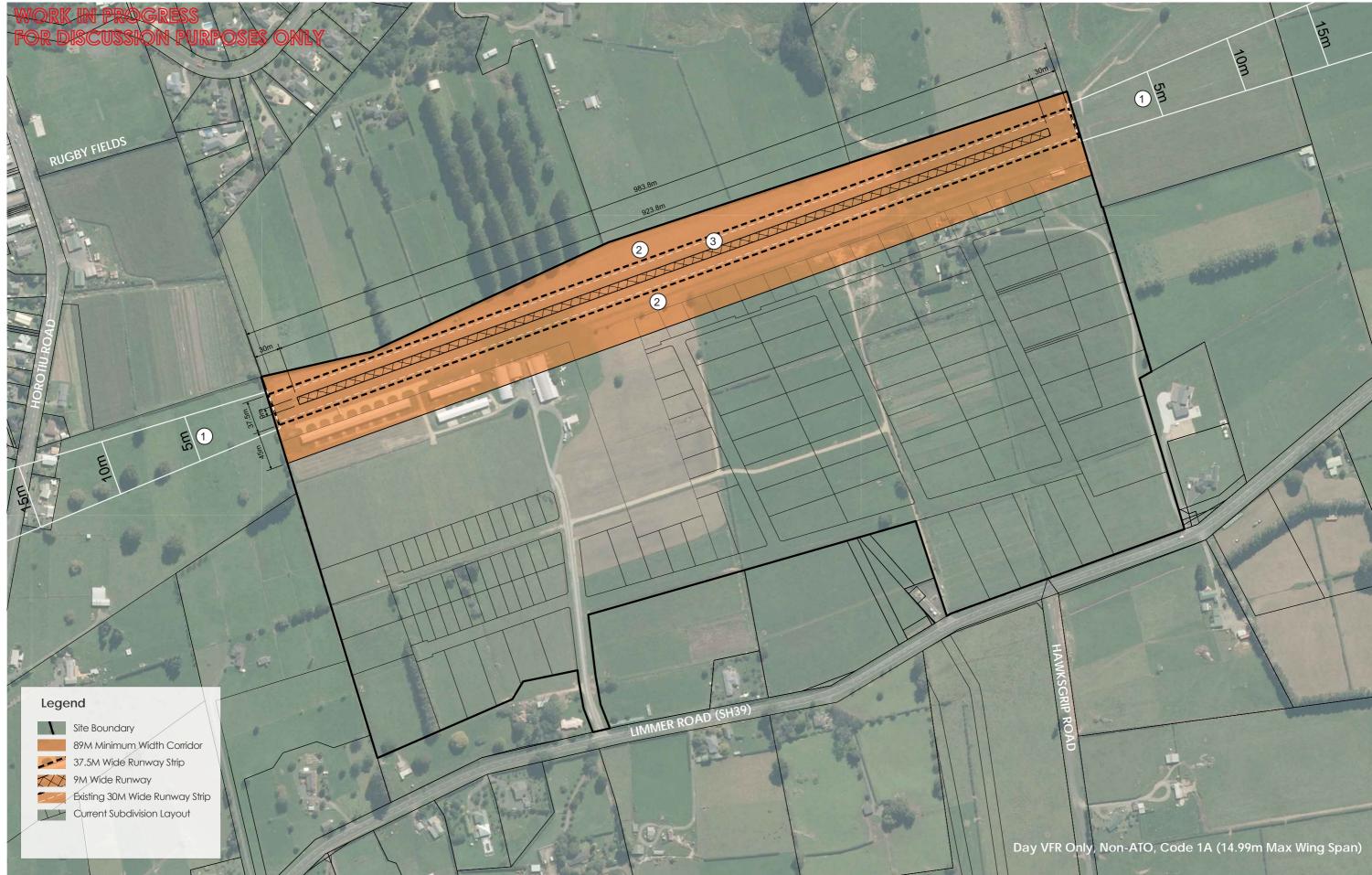


- 1. OLS unchanged. 1:20 upslope, 1:20 side splay, 1,200m in length
 2. No Transitional side surface.
 3. Runway alignment as per District Plan. TO BE READ IN CONJUNCTION WITH OPTION A CROSS SECTION ON 1702_009a



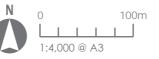
TE KOWHAI AIRPARK **Option A - Existing**

Date: 16 December 2017 | Revision B Drawing Number: 1702_009c Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd



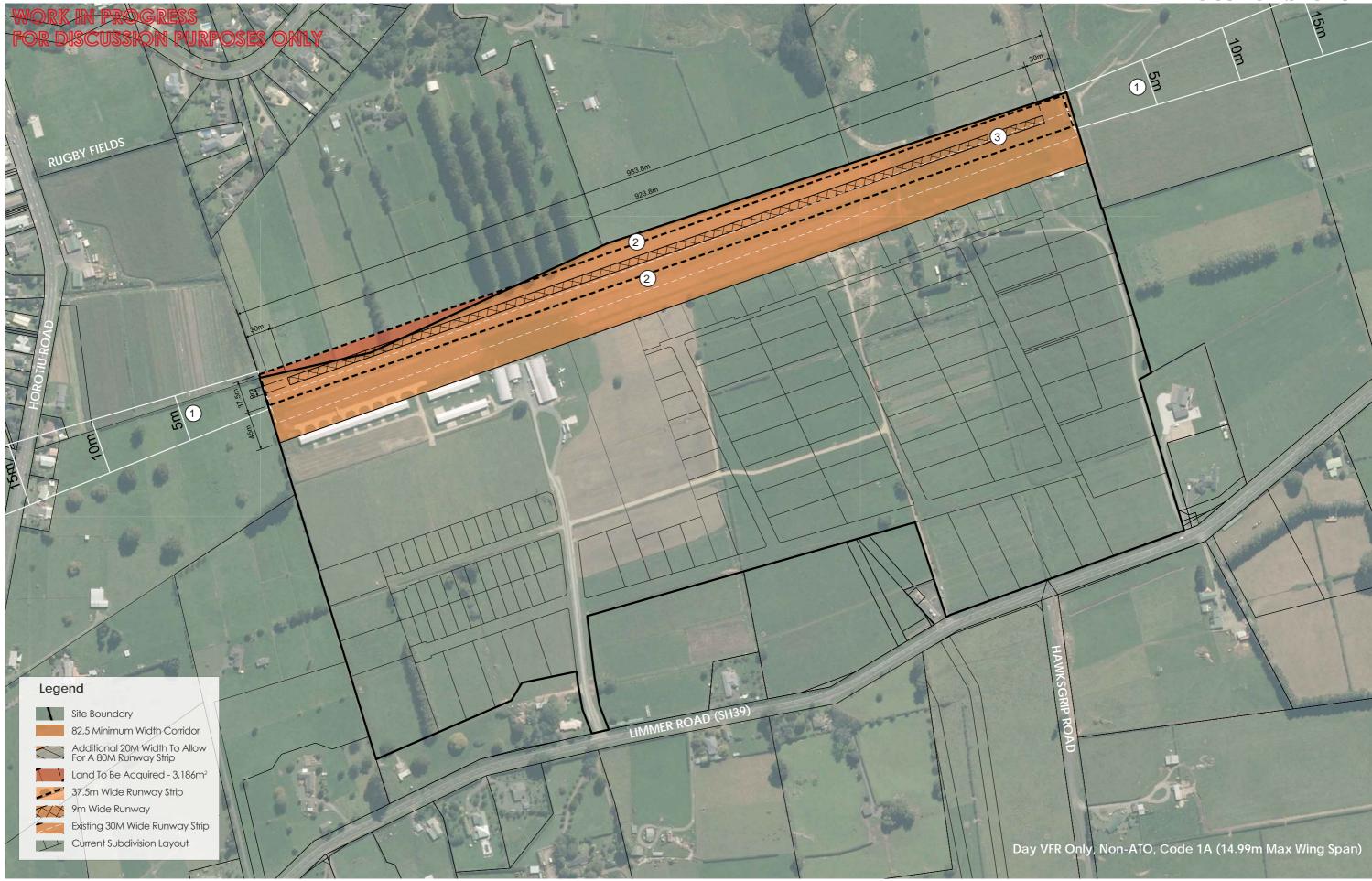


- 1. OLS unchanged. 1:20 upslope, 1:20 side splay, 1,200m in length
 2. Transitional side surface 1:4 to 2m in height
 3. Runway alignment as per District Plan. TO BE READ IN CONJUNCTION WITH OPTION B CROSS SECTION ON 1702_009a



TE KOWHAI AIRPARK **Option B1 - VFR Without Land Acquisition** Date: 16 December 2017 | Revision B

Drawing Number: 1702_009d Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd





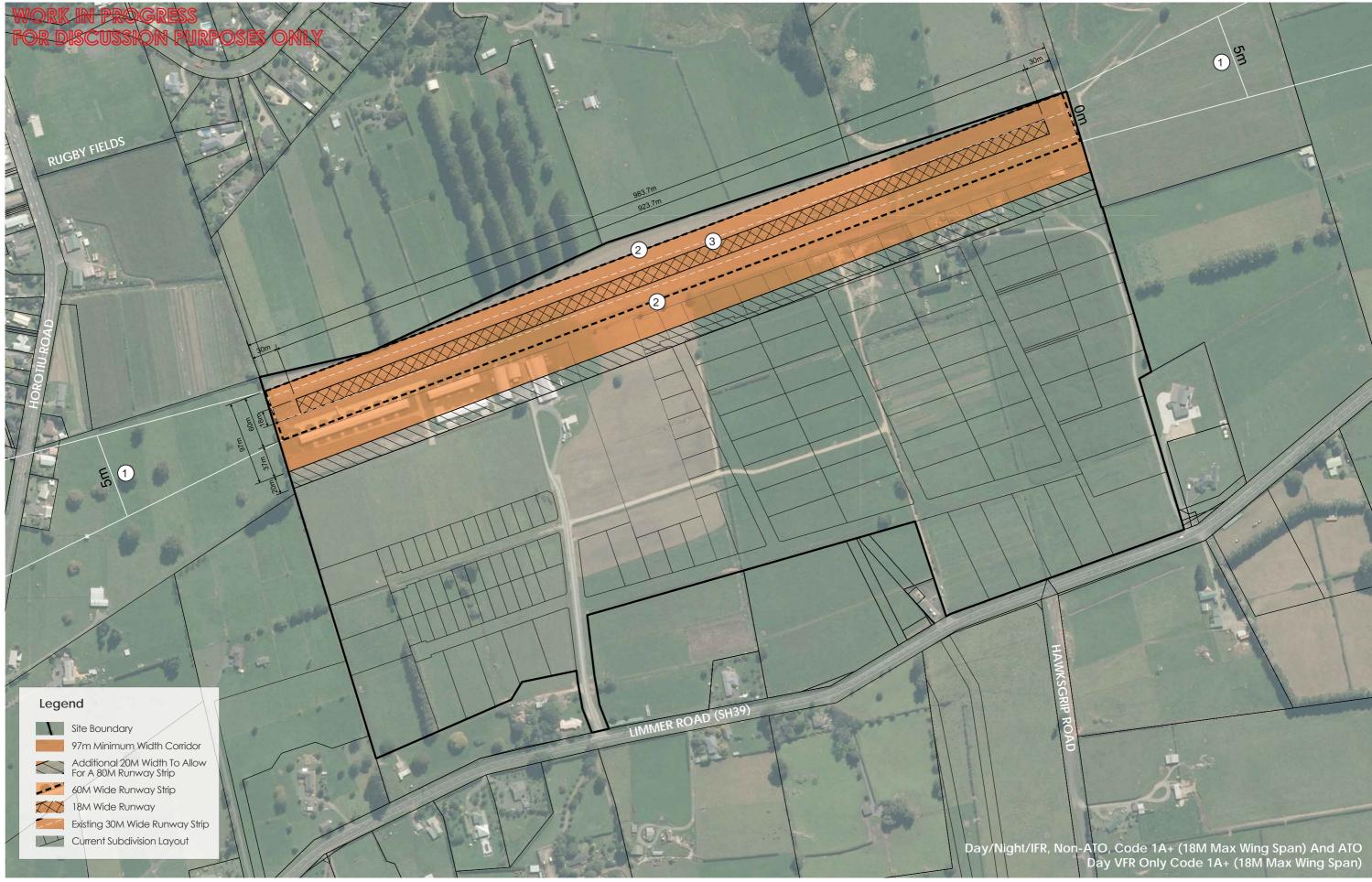
 1. OLS unchanged. 1:20 upslope, 1:20 side splay, 1,200m in length but moved to new alignment
 2. Transitional side surface 1:4 to 2m in height
 3. Runway alignment rotated 0.55 degrees clockwise to align southern extent with existing buildings

TO BE READ IN CONJUNCTION WITH OPTION B CROSS SECTION ON 1702_009a



TE KOWHAI AIRPARK
Option B2 - VFR With Land Acquisition
Date: 16 December 2017 | Revision B

Drawing Number: 1702_009e Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd





 1. OLS changed to 1:40 up slope, 1:10 side splay, 2500m in length, minor change to alignment
 2. Transitional side surface change from 1:4 to 1:5.
 3. Runway alignment rotated 0.8 degrees counter-clockwise to reduce effect on southern developable land.

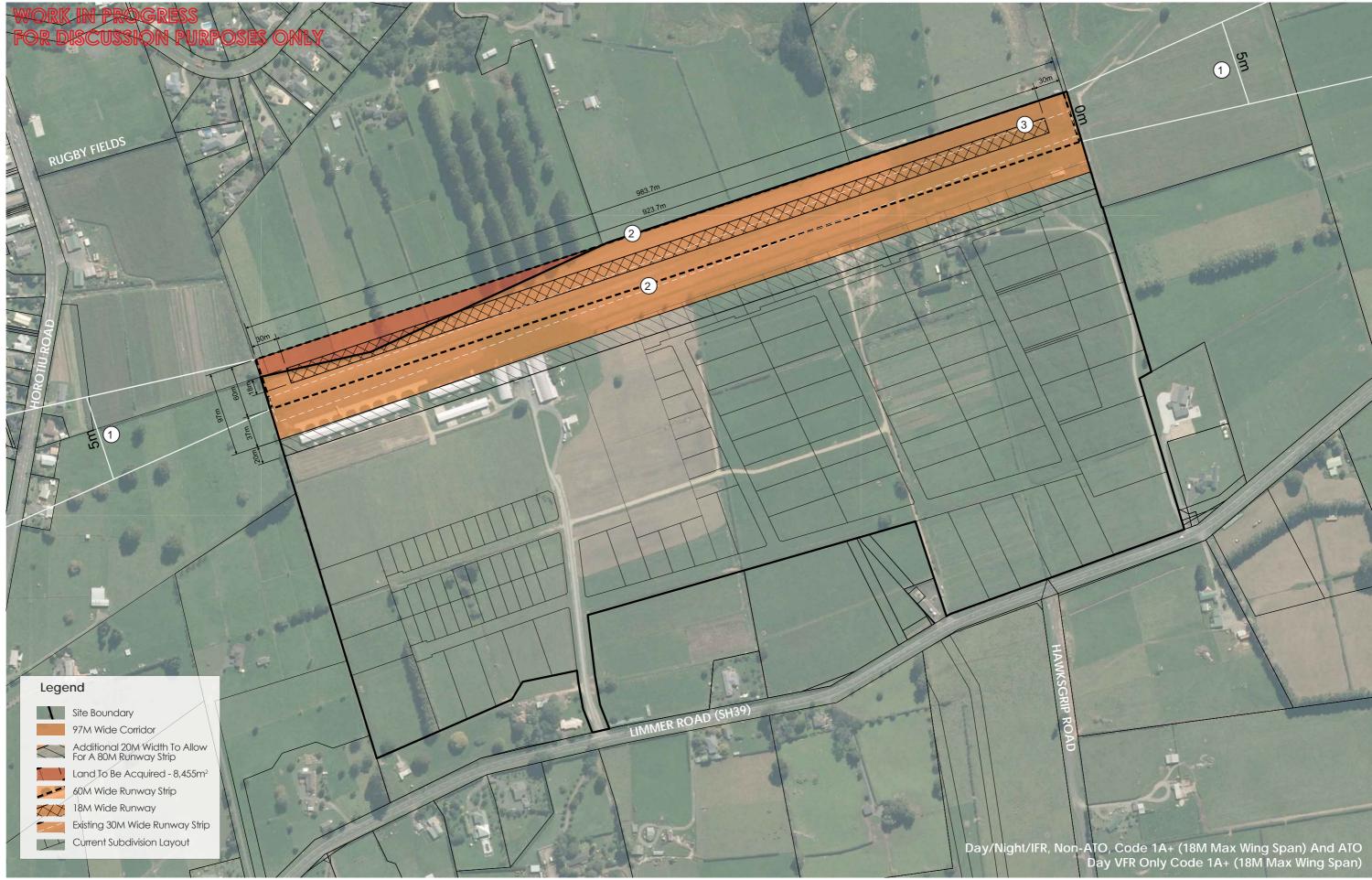
developable land. TO BE READ IN CONJUNCTION WITH OPTION C CROSS SECTION ON 1702_009b



TE KOWHAI AIRPARK Option C1 - Day/Night/IFR Without Land Acquisition

File Ref: 1702_009_Te_Kowhai_Runway_Future_Proofing.indd

Date: 16 December 2017 | Revision B Drawing Number: 1702_009f Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd



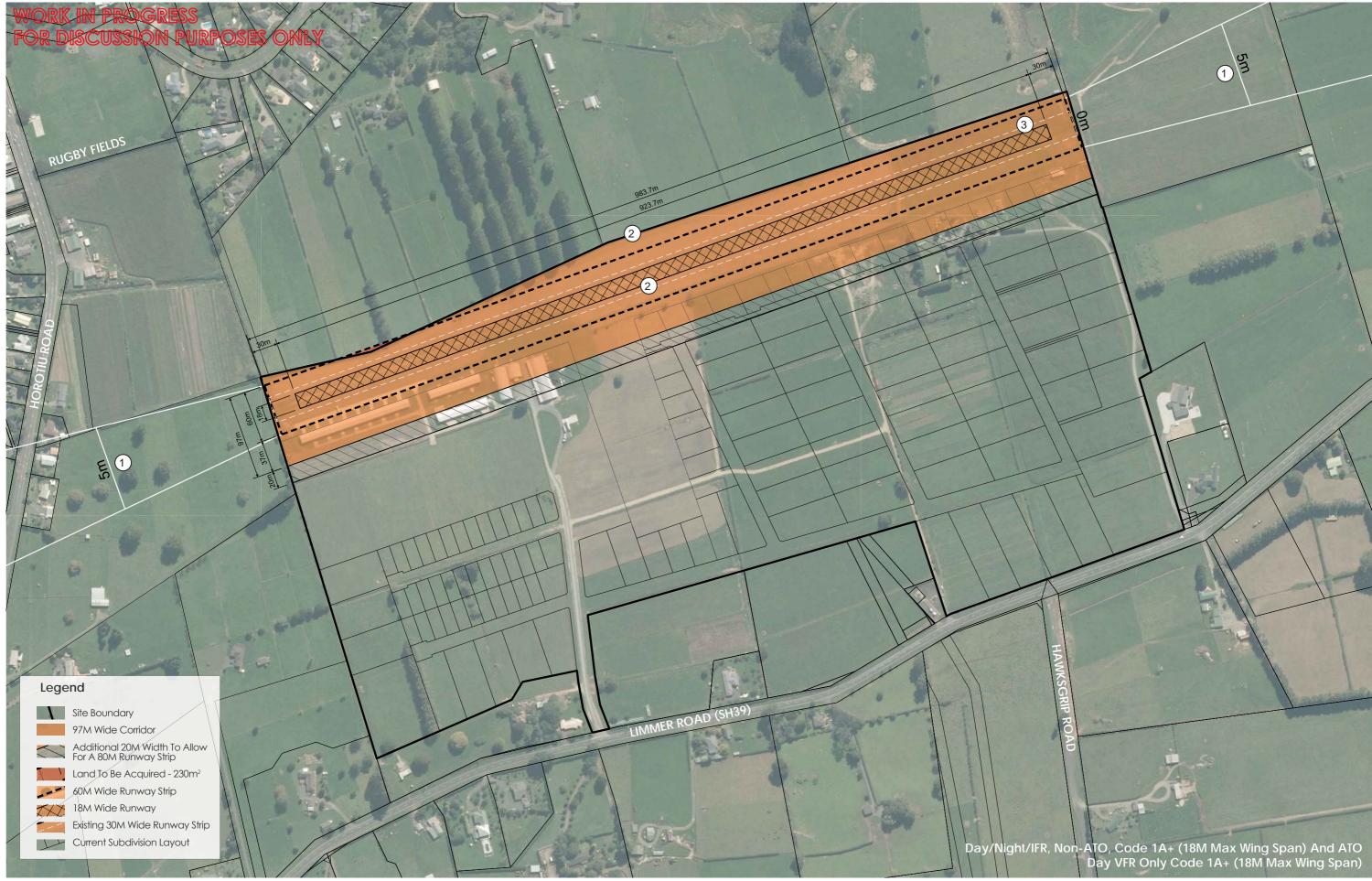


1. OLS changed to 1:40 up slope, 1:10 side splay, 2500m in length, significant change to alignment
 2. Transitional side surface change from 1:4 to 1:5.
 3. Runway alignment rotated 1.43 degrees clockwise to align with existing buildings.
 TO BE READ IN CONJUNCTION WITH OPTION C CROSS SECTION ON 1702_009b



TE KOWHAI AIRPARK Option C2 - Day/Night/IFR With Land Acquisition

Date: 16 December 2017 | Revision B Drawing Number: 1702_009g Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd



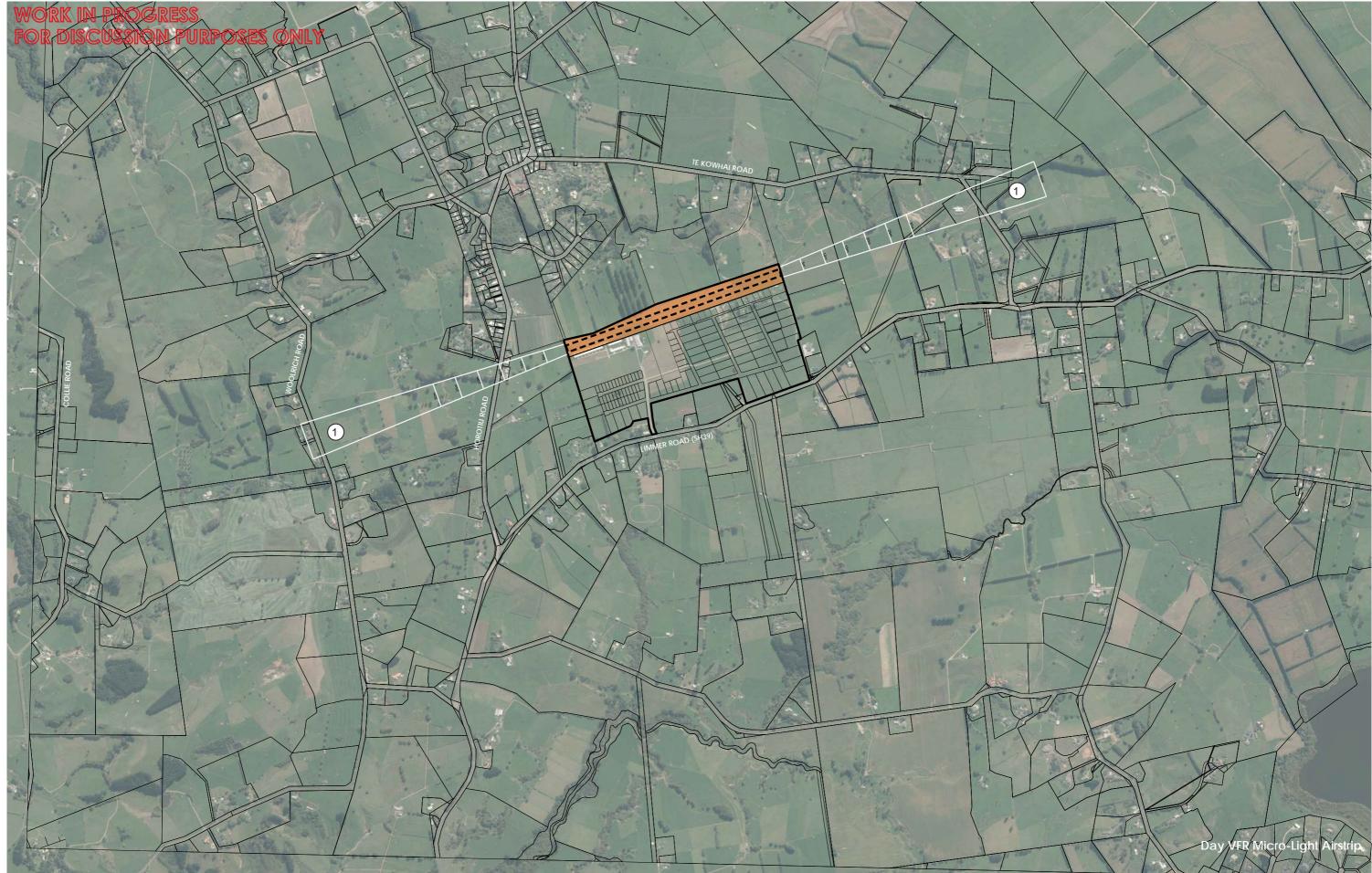


1. OLS changed to 1:40 up slope, 1:10 side splay, 2500m in length, no change to alignment
 2. Transitional side surface change from 1:4 to 1:5.
 3. Runway alignment rotated 1.43 degrees clockwise to align with existing buildings.
 TO BE READ IN CONJUNCTION WITH OPTION C CROSS SECTION ON 1702_009b



TE KOWHAI AIRPARK Option C3 - Day/Night/IFR Existing Alignment

Date: 16 December 2017 | Revision B Drawing Number: 1702_009h Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd

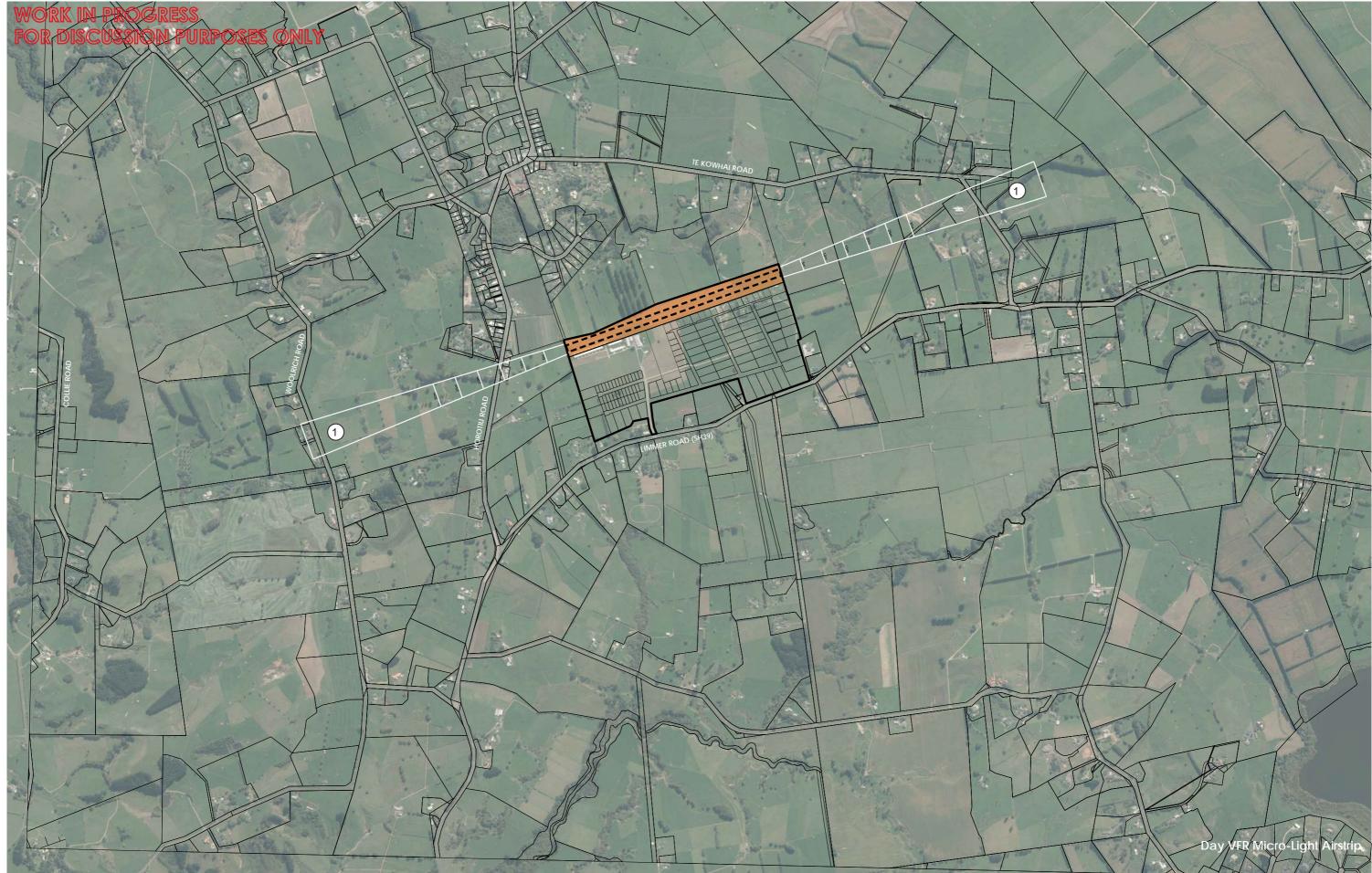




1. OLS unchanged. 1:20 upslope, 1:20 side splay, 1,200m in length



TE KOWHAI AIRPARK Option A - Existing OLS Date: 16 December 2017 | Revision B Drawing Number: 1702_009i Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd

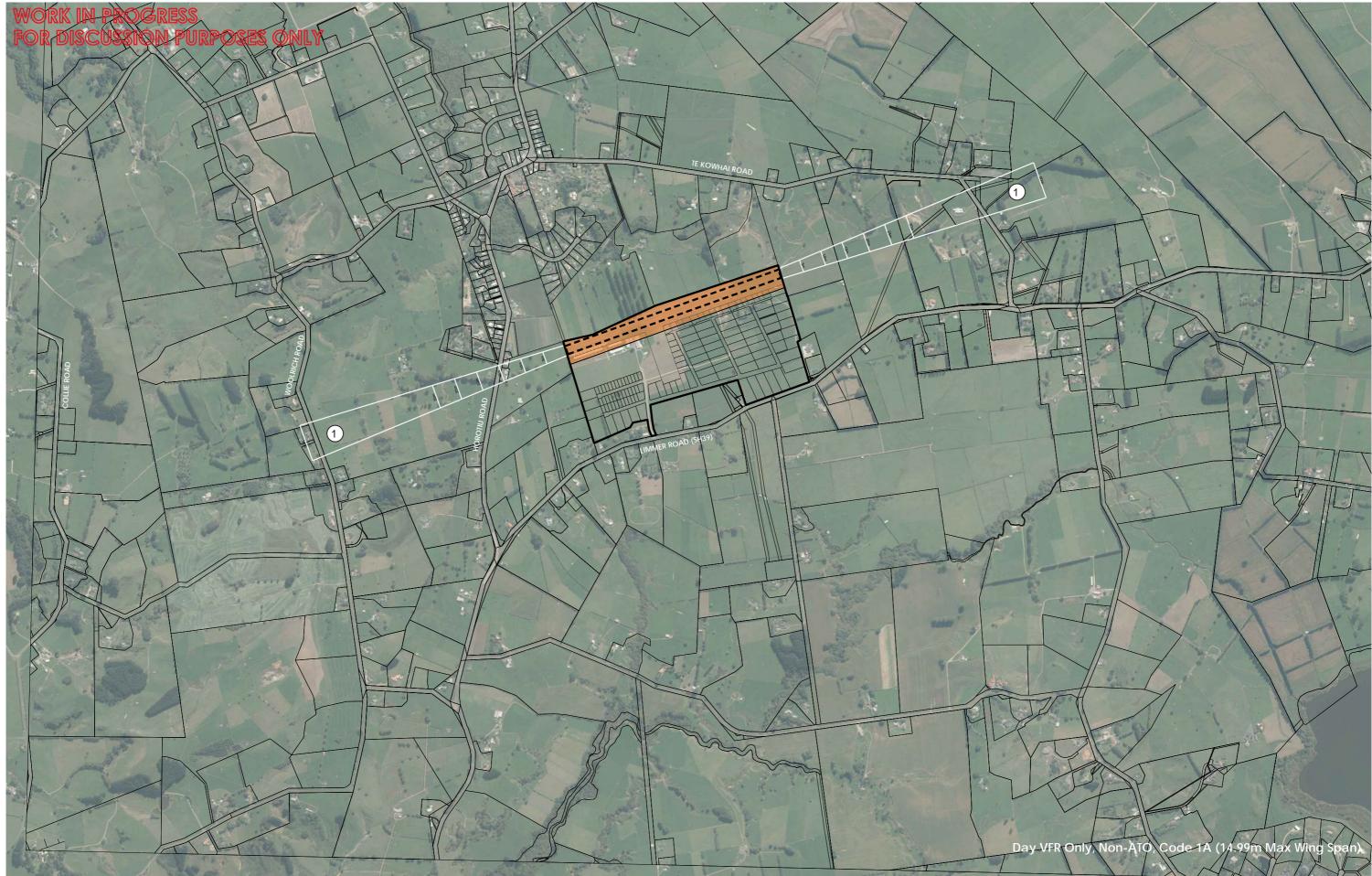




1. OLS unchanged. 1:20 upslope, 1:20 side splay, 1,200m in length



TE KOWHAI AIRPARK Option A - Existing OLS Date: 16 December 2017 | Revision B Drawing Number: 1702_009j Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd

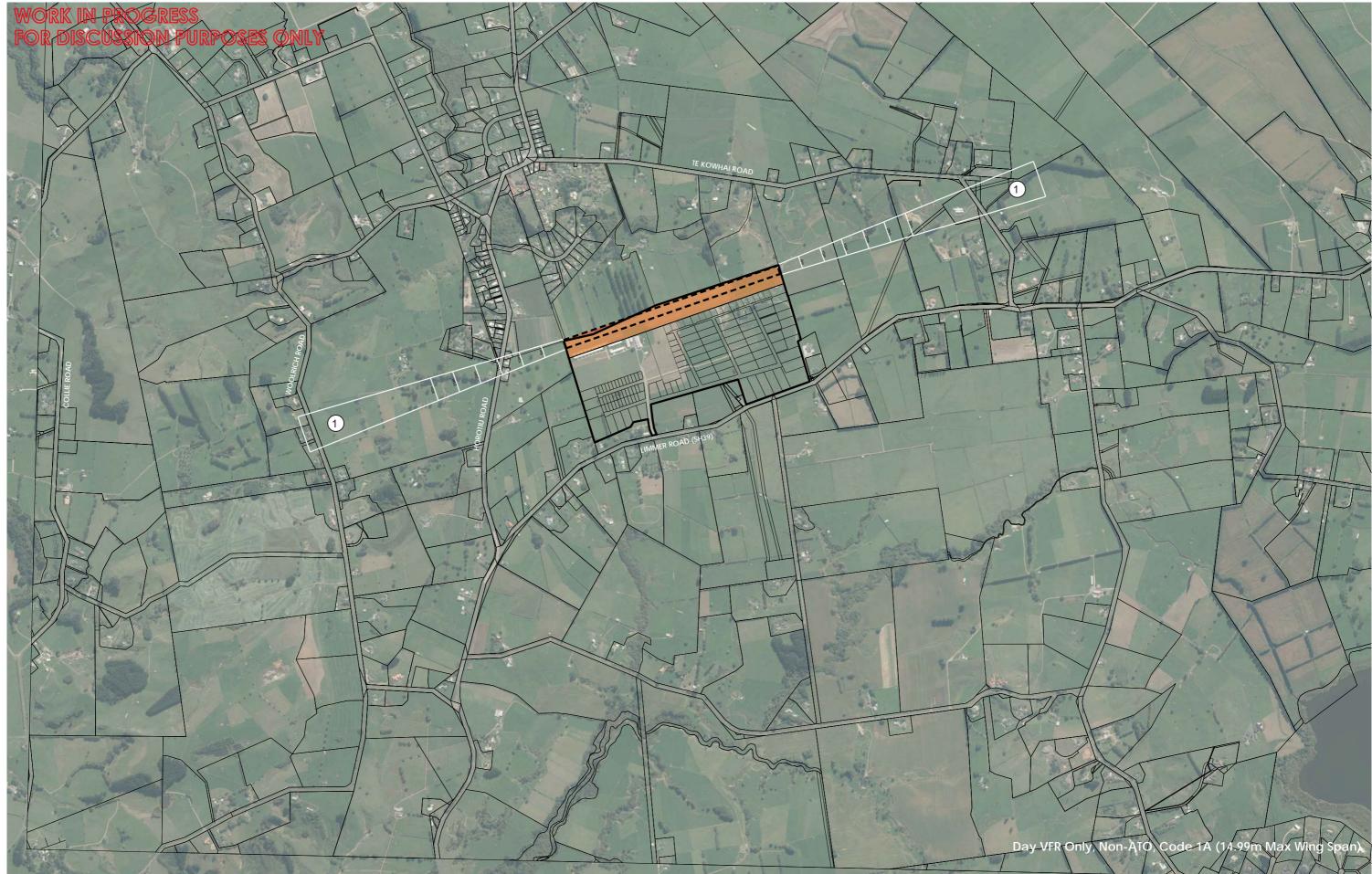




1. OLS unchanged. 1:20 upslope, 1:20 side splay, 1,200m in length



TE KOWHAI AIRPARK Option B1 - VFR Without Land Acquisition OLS Date: 16 December 2017 | Revision B Drawing Number: 1702_009k Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd

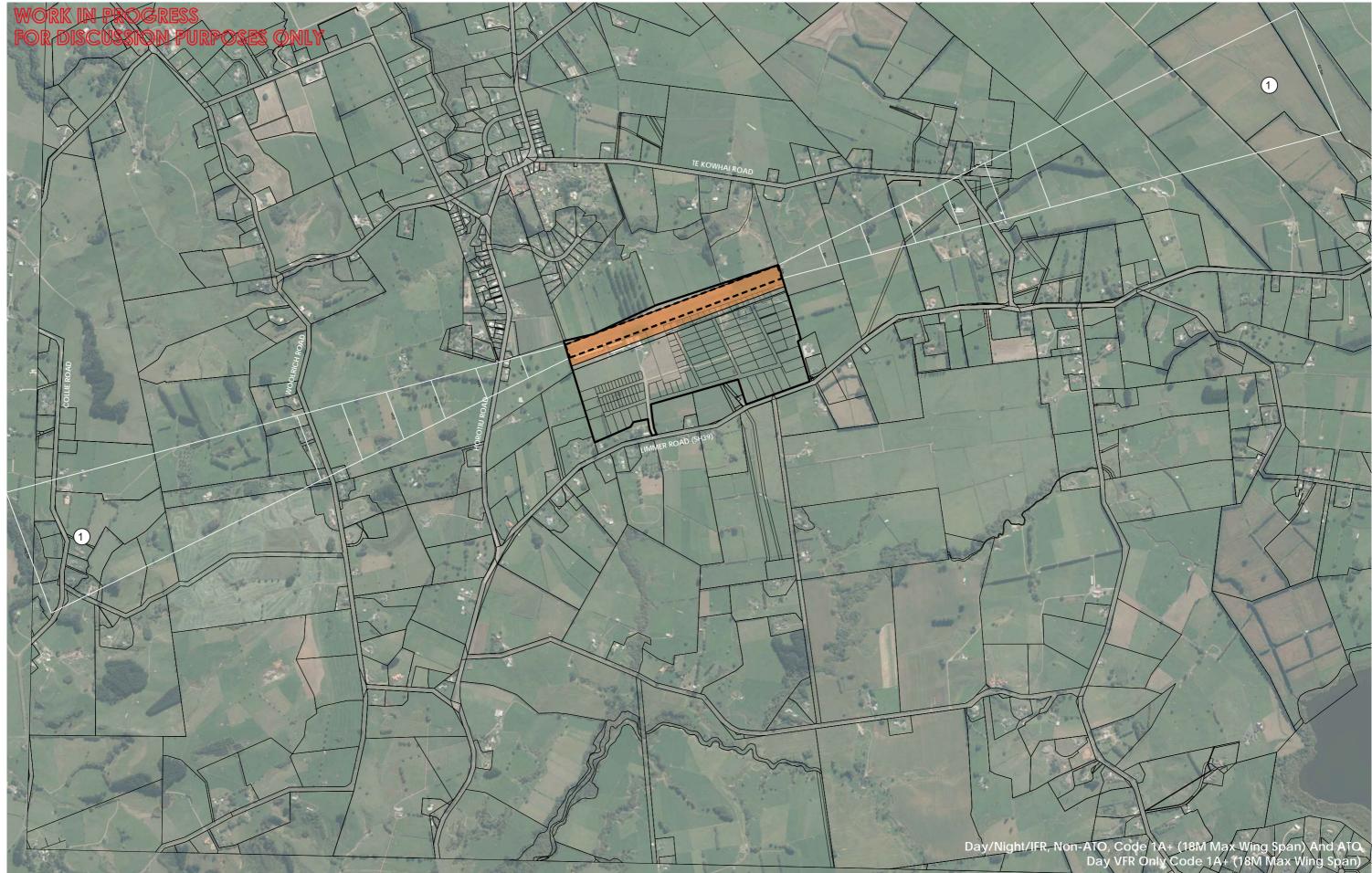




1. OLS unchanged. 1:20 upslope, 1:20 side splay, 1,200m in length, minor alignment change



TE KOWHAI AIRPARK Option B2 - VFR With Land Acquisition OLS Date: 16 December 2017 | Revision B Drawing Number: 1702_0091 Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd



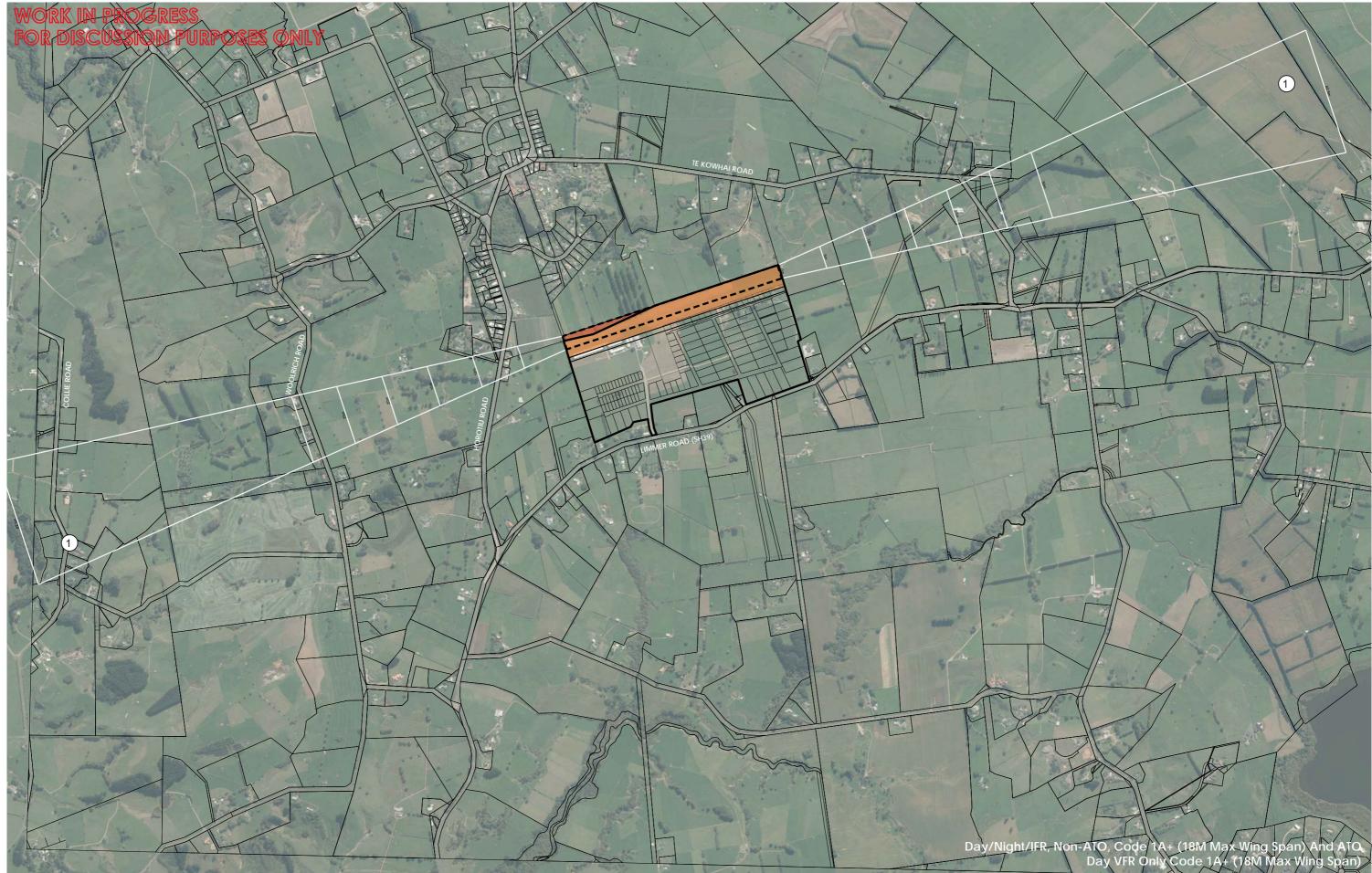


1. OLS changed to 1:40 up slope, 1:10 side splay, 2500m in length, minor change to alignment



TE KOWHAI AIRPARK Option C1 - Day/Night/IFR Without Land Acquisition OLS Date: 16 December 2017 | Revision B Drawing Number: 1702_009m

Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd

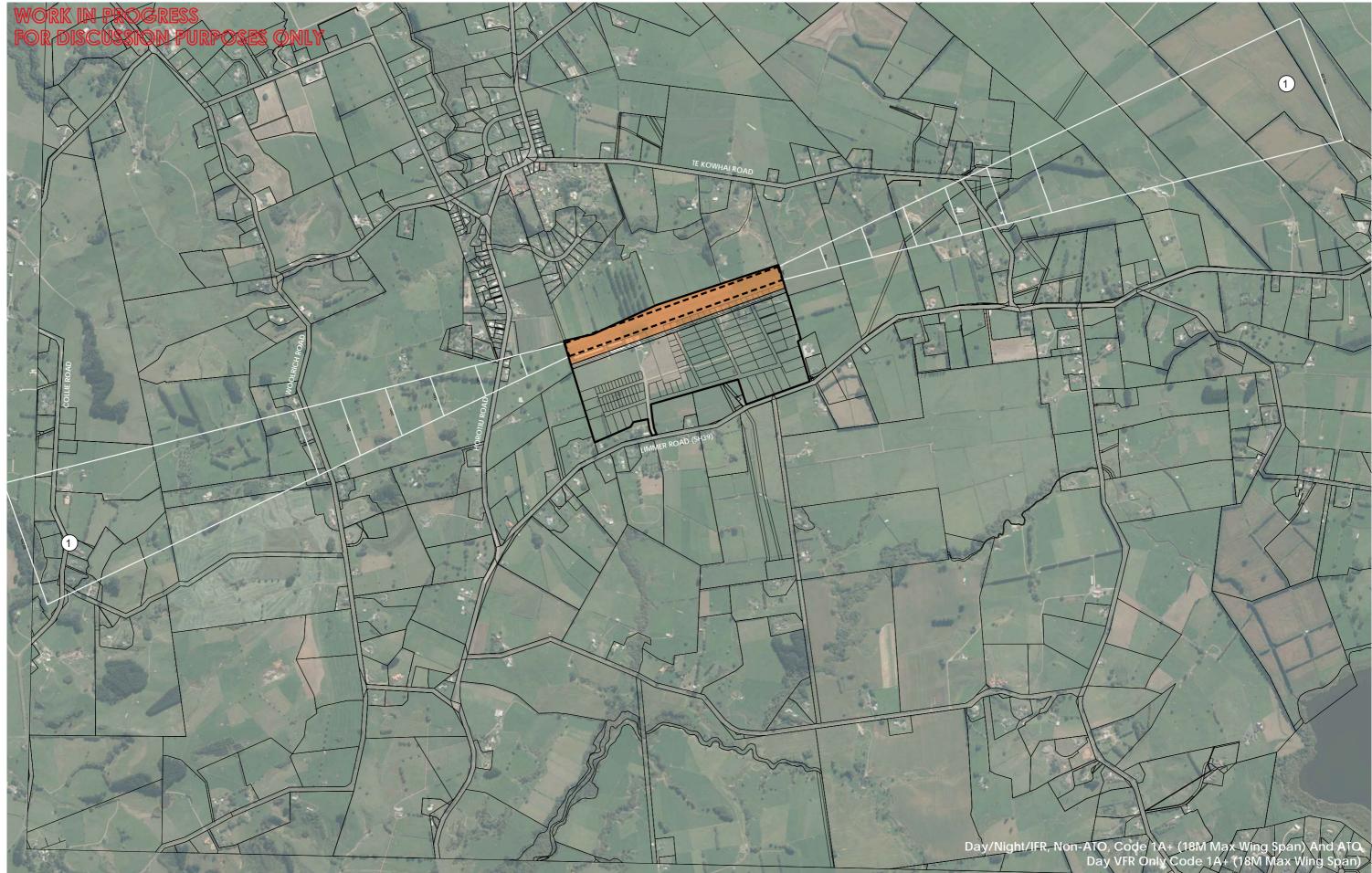




1. OLS changed to 1:40 up slope, 1:10 side splay, 2500m in length, significant change to alignment



TE KOWHAI AIRPARK Option C2 - Day/Night/IFR With Land Acquisition OLS Date: 16 December 2017 | Revision B Drawing Number: 1702_009n Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd





1. OLS changed to 1:40 up slope, 1:10 side splay, 2500m in length, no change to alignment



TE KOWHAI AIRPARK Option C3 - Day/Night/IFR Existing Alignment OLS Date: 16 December 2017 | Revision B Drawing Number: 1702_0090

Plan prepared by Adapt Studio Ltd for Te Kowhai Airfield Ltd